

Recent Papers by IBM Authors

Reprints of the papers listed here may usually be obtained by writing directly to the authors. The authors' IBM divisions are identified as follows: CHQ is Corporate Headquarters; DPD, Data Processing Division; DSD, Data Systems Division; FED, Field Engineering Division; FSD, Federal Systems Division; GPD, General Products Division; GSD, General Systems Division; GTD, General Technology Division; OPD, Office Products Division; RES, Research Division; SCD, System Communications Division; and SPD, System Products Division.

• Journals are listed alphabetically by title: papers are listed sequentially for each journal.

A

Bonding Rf Absorbent Material to Microwave Enclosure Covers, H. Heuring (FSD Owego, NY), *Adhesives Age* **22**, No. 10, 44-45 (1979).

Binding Constraints and Helly Numbers, A. J. Hoffman (RES Yorktown Hts., NY), *Annals of the New York Academy of Sciences* **319**, 284-288 (1979).

Improved geometry for polarization-sensitive nonlinear spectroscopy, M. A. F. Scarparo, J. J. Song, J. H. Lee, C. Cromer (University of Southern California, Los Angeles), and M. D. Levenson (RES San Jose, CA), *Applied Physics Letters* **35**, No. 7, 490-492 (1979).

The importance of geometry, field, and temperature in tunneling and rectification behavior of point contact junctions of identical metals, N. M. Miskovsky (Pennsylvania State University, Altoona), S. J. Shepherd, P. H. Cutler (Pennsylvania State University, University Park), T. E. Sullivan (RCA Laboratories, Princeton, NJ), and A. A. Lucas (RES Yorktown Hts., NY), *Applied Physics Letters* **35**, No. 7, 560-562 (1979).

Using Rewriting Rules for Connection Graphs to Prove Theorems, C. L. Chang (RES San Jose, CA) and J. R. Slagle (Naval Research Laboratory, Washington, DC), *Artificial Intelligence* **12**, No. 2, 159-178 (1979).

Properties of Spiral Galaxies from a Stochastic Star Formation Model, P. E. Seiden and H. Gerola (RES Yorktown Hts., NY), *Astrophysical Journal* **233**, No. 1, 56-66 (1979).

B

Interaction of Molecules with Nucleic Acids. II. Two Pairs of Families of Intercalation Sites, Unwinding Angles, and the Neighbor-Exclusion Principle, K. J. Miller (Rensselaer Polytechnic Institute, Troy, NY) and J. F. Pycior (DSD Poughkeepsie, NY), *Biopolymers* **18**, No. 11, 2683-2719 (1979).

Computer Simulation of a Dendrodendritic Synaptic Circuit for Self-Inhibition and Lateral-Inhibition in the Olfactory Bulb, G. M. Shepherd (Yale University, New Haven, CT) and R. K. Brayton (RES Yorktown Hts., NY), *Brain Research* **175**, No. 2, 377-382 (1979).

Reflection and Transmission of Obliquely Incident Rayleigh Waves at a Vertical Discontinuity Between Two Welded Quarter-Spaces, T. C. Chen (Columbia University, Palisades, NY) and L. E. Alsop (RES Yorktown Hts., NY), *Bulletin of the Seismological Society of America* **69**, No. 5, 1409-1423 (1979).

C

Mechanism of demulsification of oil-in-water emulsion in the centrifuge, A. U. Hahn (Stauffer Chemical Co., Richmond, CA) and K. L. Mittal (DSD East Fishkill, NY), *Colloid and Polymer Science* **257**, No. 9, 959-967 (1979).

An Algorithm for Planning Collision-Free Paths Among Polyhedral Obstacles, T. Lozano-Pérez (Massachusetts Institute of Technology, Cambridge) and M. A. Wesley (RES Yorktown Hts., NY), *Communications of the ACM* **22**, No. 10, 560-570 (1979).

Print Quality Tradeoffs in Ink Jet Technology, J. D. Hill (OPD Lexington, KY), *Computer Design* **18**, No. 9, 122+ (1979).

D

Taking the Measure of Space, J. F. Durkin and G. W. Cunningham (FSD Gaithersburg, MD), *Datamation* **25**, No. 10, 127-134 (1979).

E

4341s infrastructure is new from the substrate up, H. Cordero, Jr. (SPD Endicott, NY), *Electronics* **52**, No. 23, 110-115 (1979).

Support processor analyzes errors caught by latches, T. J. Frechette and F. Tanner (SPD Endicott, NY), *Electronics* **52**, No. 23, 116-118 (1979).

Streamlined architecture achieves software compatibility, H. R. Schwermer (IBM Germany, Böblingen), *Electronics* **52**, No. 23, 119-120 (1979).

G

Migration by phase shift—An algorithmic description for array processors, A. A. Dubrulle and J. Gazdag (DPD Scientific Center, Palo Alto, CA), *Geophysics* **44**, No. 10, 1661-1666 (1979).

I

Overview of the capacity planning process for production data processing, L. Bronner (DPD Gaithersburg, MD), *IBM Systems Journal* **19**, No. 1, 4-27 (1980).

A capacity planning methodology, J. C. Cooper (DPD Gaithersburg, MD), *IBM Systems Journal* **19**, No. 1, 28-45 (1980).

System capacity and performance evaluation, D. C. Schiller (DPD Gaithersburg, MD), *IBM Systems Journal* **19**, No. 1, 46-67 (1980).

Modeling considerations for predicting performance of CICS/VS systems, P. H. Seaman (DPD Poughkeepsie, NY), *IBM Systems Journal* **19**, No. 1, 68-80 (1980).

The role of detailed simulation in capacity planning, H. C. Nguyen (WTC E/ME/A Poughkeepsie, NY), A. Ockene (WTC E/ME/A White Plains, NY), R. Revell (IBM United Kingdom, Croyden), and W. J. Skwish (WTC E/ME/A Poughkeepsie, NY), *IBM Systems Journal* **19**, No. 1, 81-101 (1980).

An MVS tuning approach, R. M. Schardt (DPD Gaithersburg, MD), *IBM Systems Journal* **19**, No. 1, 102-119 (1980).

A sidestream approach using a small processor as a tool for managing communication systems, J. R. Leach (FED Los Angeles, CA) and R. D. Campenni (DPD Gaithersburg, MD), *IBM Systems Journal* **19**, No. 1, 120-139 (1980).

Systems management, R. A. Bird (IBM Canada, Don Mills) and C. A. Hofmann (FED Raleigh, NC), *IBM Systems Journal* **19**, No. 1, 140-159 (1980).

Introduction to Special Section on Programmable Logic Arrays, H. Fleisher (DSD Poughkeepsie, NY), *IEEE Transactions on Computers* **C-28**, No. 9, 593 (1979).

High Density Programmable Logic Array Chip, R. A. Wood (SCD Kingston, NY), *IEEE Transactions on Computers* **C-28**, No. 9, 602-608 (1979).

Fault Analysis and Test Generation for Programmable Logic Arrays (PLAs), D. L. Ostapko and S. J. Hong (RES Yorktown Hts., NY), *IEEE Transactions on Computers* **C-28**, No. 9, 617-627 (1979).

Associative Search Bubble Devices for Content Addressable Memory and Array Logic, S. Y. Lee (National Taiwan University, Taipei) and H. Chang (RES Yorktown Hts., NY), *IEEE Transactions on Computers* **C-28**, No. 9, 627-636 (1979).

The Differential Voltage Pen for Plasma Panels—A Light Pen Substitute, S. K. Hoo (GPD San Jose, CA), *IEEE Transactions on Electron Devices* **ED-26**, No. 9, 1306-1309 (1979).

Bubble Propagation and State Control in the Access Column of a Current Accessed Bubble Lattice Chip, D. W. Chapman (GPD San Jose, CA), *IEEE Transactions on Magnetics* **MAG-15**, No. 5, 1326-1332 (1979).

Fabrication of SLM Conductor—First 2 μ m Bubble Devices, K. Y. Ahn, D. E. Cox, and J. V. Powers (RES Yorktown Hts., NY), *IEEE Transactions on Magnetics* **MAG-15**, No. 5, 1333-1335 (1979).

A Hierarchical Multiobjective Framework for Water Resources Planning, S. C. Olenik (DSD Poughkeepsie, NY) and Y. Y. Haimes (Case Western Reserve University, Cleveland, OH), *IEEE Transactions on Systems, Man, and Cybernetics* **SMC-9**, No. 9, 534-544 (1979).

Trace Analysis in Gases by Laser Induced Schlieren Technique, W. Herrmann and D. W. Pohl (RES Zurich, Switzerland), *Infrared Physics* **19**, No. 3-4, 455-459 (1979).

J

Organic Photochemistry with 6.7-eV Photons: Irradiation of Molecular Oxygen in Hydrocarbon Solution, R. Srinivasan and L. S. White (RES Yorktown Hts., NY), *Journal of the American Chemical Society* **101**, No. 21, 6389-6392 (1979).

Gaussian Plume Model Parameters for Ground Level and Elevated Sources Derived from the Atmospheric Diffusion Equation in a Neutral Case, P. Melli and E. Runca (IBM Italy, Venice Scientific Center), *Journal of Applied Meteorology* **18**, No. 9, 1216-1221 (1979).

New Fuser Technology for Electrophotographic Printing Machines, C. C. Wilson (OPD Boulder, CO), *Journal of Applied Photographic Engineering* **5**, No. 3, 148-156 (1979).

Contact reaction between Si and Pd-W alloy films, J. O. Olowolafe (RES Yorktown Hts., NY), K. N. Tu (University of Ife, Ife-Ife, Nigeria), and J. Angilello (RES Yorktown Hts., NY), *Journal of Applied Physics* **50**, No. 10, 6316-6320 (1979).

Electron trapping in SiO₂ at 295 and 77°K, D. R. Young, E. A. Irene, D. J. DiMaria, R. F. DeKeersmaecker (RES Yorktown Hts., NY), and H. Z. Massoud (Stanford University, CA), *Journal of Applied Physics* **50**, No. 10, 6366-6372 (1979).

Encoding Data Structures in Trees, A. L. Rosenberg (RES Yorktown Hts., NY), *Journal of the Association for Computing Machinery* **26**, No. 4, 668-689 (1979).

Photochemical studies on the ethyl radical, J. Pacansky (RES San Jose, CA) and H. Coufal (TU München, Garching, Federal Republic of Germany), *Journal of Chemical Physics* **71**, No. 7, 2811-2817 (1979).

'Organic Metals': Polypyrrole, a Stable Synthetic 'Metallic' Polymer, K. K. Kanazawa, A. F. Diaz, R. H. Geiss, W. D. Gill, J. F. Kwak, J. A. Logan, J. F. Rabolt, and G. B. Street (RES San Jose, CA), *Journal of the Chemical Society, Chemical Communications*, No. 19, 854-855 (1979).

Intrinsic Viscosities and Other Rheological Properties of Flocculated Suspensions of Nonmagnetic and Magnetic Ferric Oxides, T. L. Smith and C. A. Bruce (RES San Jose, CA), *Journal of Colloid and Interface Science* **72**, No. 1, 13-26 (1979).

Testing for Single Faults in Modular Combinational Networks, J. Savir (RES Yorktown Hts., NY), *Journal of Design Automation and Fault-Tolerant Computing* **3**, No. 2, 69-82 (1979).

An Exact Formula for the Contact Value of the Density Profile of a System of Charged Hard Spheres Near a Charged Wall, D. Henderson (RES San Jose, CA), L. Blum (University of Puerto Rico, Rio Piedras), and J. L. Lebowitz (Rutgers University, New Brunswick, NJ), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* **102**, No. 3, 315-319 (1979).

POCl₃ and Boron Gettering of LSI Silicon Devices: Similarities and Differences, O. Paz, E. Hearn, and E. Fayó (DSD East Fishkill, NY), *Journal of the Electrochemical Society* **126**, No. 10, 1754-1761 (1979).

Filamentary AC Electroluminescence in ZnS:Mn, W. Rühle (University of Stuttgart, Federal Republic of Germany), V. Marrello, and A. Onton (RES San Jose, CA), *Journal of Electronic Materials* **8**, No. 6, 839-853 (1979).

A Simple "Magic-Angle" Spinning Apparatus for Routine Use in NMR Spectroscopy of Solids, C. A. Fyfe, H. Mossbruger, and C. S. Yannoni (RES San Jose, CA), *Journal of Magnetic Resonance* **36**, No. 1, 61-68 (1979).

Direct Use of the Fundamental Matrix in Two-Point Boundary Value Problems, S. M. Roberts (DPD Scientific Center, Palo Alto, CA), *Journal of Mathematical Analysis and Applications* 71, No. 1, 147-160 (1979).

Technology Transfer in the Design of Adjustable Linkages, D. C. Tao and H. S. Yan (OPD Lexington, KY), *Journal of Mechanical Design* 101, No. 3, 495-498 (1979).

On the Formulation of Invariant Imbedding Problems, S. M. Roberts (DPD Scientific Center, Palo Alto, CA) and J. S. Shipman (FSD Gaithersburg, MD), *Journal of Optimization Theory and Applications* 28, No. 4, 525-547 (1979).

A Commentary on the Method of Successive Starts, S. M. Roberts (DPD Scientific Center, Palo Alto, CA), *Journal of Optimization Theory and Applications* 29, No. 1, 67-76 (1979).

Percolation as the Zero Temperature Limit of the Dilute Ising Model, M. F. Thorpe (Michigan State University, Lansing) and S. Kirkpatrick (RES Yorktown Hts., NY), *Journal of Physics A* 12, No. 10, 1835-1841 (1979).

L

Further Results on the Reverse-Order Law, N. Shinozaki (Keio University, Yokohama, Japan) and M. Sibuya (IBM Japan, Tokyo Scientific Center), *Linear Algebra and Its Applications* 27, 9-16 (1979).

M

A Determination of Polymer Number-Averaged and Weight-Averaged Molecular Weight Using Photon Correlation Spectroscopy, J. C. Selser (RES San Jose, CA), *Macromolecules* 12, No. 5, 909-916 (1979).

A Direct Dual Method for the Mixed Plant Location Problem with Some Side Constraints, M. Guignard (University of Pennsylvania, Philadelphia) and K. Spielberg (DPD White Plains, NY), *Mathematical Programming* 17, No. 2, 198-228 (1979).

N

Simulation of Nonhomogeneous Poisson Processes by Thinning, P. A. W. Lewis (Naval Postgraduate School, Monterey, CA) and G. S. Shedler (RES San Jose, CA), *Naval Research Logistics Quarterly* 26, No. 3, 403-413 (1979).

P

Boundary Conditions in the Numerical Integration of Takagi-Taupin Equations: Application to the Laue and Bragg Cases, Y. Epelboin (Pierre and Marie Curie University, Paris, France) and P. Riglet (RES Yorktown Hts., NY), *Physica Status Solidi A* 54, No. 2, 547-556 (1979).

Unified theory of internal photoemission and photon-assisted tunneling, A. Hartstein and Z. A. Weinberg (RES Yorktown Hts., NY), *Physical Review B* 20, No. 4, 1335-1338 (1979).

Theory of Auger relaxation energies in metals, N. D. Lang and A. R. Williams (RES Yorktown Hts., NY), *Physical Review B* 20, No. 4, 1369-1376 (1979).

Localized model for hydrogen chemisorption on the silicon (111) surface, K. Hermann (TU Clausthal, Clausthal-Zellerfeld, Federal Republic of Germany) and P. S. Bagus (RES San Jose, CA), *Physical Review B* 20, No. 4, 1603-1610 (1979).

Localization of electronic states at free semiconductor surfaces, J. Pollmann (University of Dortmund, Federal Republic of Germany) and S. T. Pantelides (RES Yorktown Hts., NY), *Physical Review B* 20, No. 4, 1740-1742 (1979).

Matthiessen's rule in highly anisotropic conductors, P. E. Seiden (RES Yorktown Hts., NY) and A. N. Bloch (The Johns Hopkins University, Baltimore, MD), *Physical Review B* 20, No. 4, 1743-1746 (1979).

Dynamical interactions in $\text{EuAsO}_4(\text{Gd})$ and $\text{EuVO}_4(\text{Gd})$, F. Mehran, K. W. H. Stevens, and T. S. Plaskett (RES Yorktown Hts., NY), *Physical Review B* 20, No. 5, 1817-1822 (1979).

Calculated hyperfine fields and their pressure derivatives in Fe, Co, and Ni, J. F. Janak (RES Yorktown Hts., NY), *Physical Review B* 20, No. 5, 2206-2208 (1979).

Observation of Direct Inelastic Scattering in the Presence of Trapping-Desorption Scattering: Xe on PT(111), J. E. Hurst, C. A. Becker, J. P. Cowin, K. C. Janda, L. Wharton (University of Chicago, IL), and D. J. Auerbach (RES San Jose, CA), *Physical Review Letters* 43, No. 16, 1175-1177 (1979).

Cluster Phenomena and the Displacive to Order-Disorder Cross-over, A. D. Bruce, T. Schneider, and E. Stoll (RES Zurich, Switzerland), *Physical Review Letters* 43, No. 18, 1284-1287 (1979).

Plasmon Mechanism for the Energy Loss, Dissociation, and Orientation of Fast Ions Excited by Surface-Grazing Collisions, A. A. Lucas (RES Yorktown Hts., NY), *Physical Review Letters* 43, No. 18, 1350-1353 (1979).

Electronic Structure of the Jahn-Teller Distorted Vacancy in Silicon, N. O. Lipari, J. Bernholc, and S. T. Pantelides (RES Yorktown Hts., NY), *Physical Review Letters* 43, No. 18, 1354-1357 (1979).

Star Shaped Condition for Stability of Linear Retarded Functional Differential Equations, R. Silkowski (DSD Poughkeepsie, NY), *Proceedings of the Royal Society of Edinburgh A* 83, No. P3-4, 189-198 (1979).

R

Tri Par Addressage Direct, Sorting by Hashing, F. Ducoin (IBM France, Paris), *RAIRO Informatique, Computer Science* 13, No. 3, 225-237 (1979).

Stimulating and Rewarding Invention: How the IBM Awards Program Works, W. J. Turner (CHQ Armonk, NY), *Research Management* 22, No. 4, 24-27 (1979).

S

Flash X-ray Microscopy, R. McCorkle, J. Angilello, G. Coleman, R. Feder, and S. J. LaPlaca (RES Yorktown Hts., NY), *Science* 205, No. 4404, 401-402 (1979).

Effect of Cosmic Rays on Computer Memories, J. F. Ziegler (RES Yorktown Hts., NY) and W. A. Lanford (State University of New York, Albany), *Science* **206**, No. 4420, 776-788 (1979).

Paul Bunyan's Washline, J. S. Lew (RES Yorktown Hts., NY), *SIAM Review* **21**, No. 4, 565-566 (1979).

Experimental Band Dispersions $E(\vec{K})$ along Three Main Symmetry Lines of LaB_6 Using Angle-Resolved Photoemission from One Crystal Surface, M. Aono (University of Wisconsin—Madison, Stoughton), T. C. Chiang (RES Yorktown Hts., NY), J. A. Knapp (Sandia Laboratories, Albuquerque, NM), T. Tanaka (National Institute for Research in Organic Materials, Sakura, Japan), and D. E. Eastman (RES Yorktown Hts., NY), *Solid State Communications* **32**, No. 4, 271-274 (1979).

Surface Reconstruction: A Physical Realization of Two-Dimensional Ising and XY-Models, P. Bak (RES Yorktown Hts., NY), *Solid State Communications* **32**, No. 7, 581-583 (1979).

Some Annealing Properties of Low-Energy-Antimony-Implanted Silicon Resistors, S. M. Ku and W. K. Chu (DSD East Fishkill, NY), *Solid-State Electronics* **22**, No. 8, 719-722 (1979).

Observations on Coated Cemented Carbide Tools after Turning of a Tempered Low Alloy Steel, E. Carboni (Metalloceramica Vanzetti, Milan, Italy) and V. Veronesi (IBM Italy, Vimercate), *Sonderdruck aus Zeitschrift Praktische Metallographie* **16**, No. 9, 420-435 (1979).

The Facile Silylation of Aldehydes and Ketones using Trimethylsilyl Iodide: An Exceptionally Simple Procedure for the Generation of Thermodynamically Equilibrated Trimethylsilylenol Ethers, R. D. Miller and D. R. McKean (RES San Jose, CA), *Synthesis*, No. 9, 730-732 (1979).

W

Optimal Management of a Multireservoir Water Supply System, S. Gal (IBM Israel, Haifa Scientific Center), *Water Resources Research* **15**, No. 4, 737-749 (1979).

Wear Phenomena in Impact Printers—A Scanning Electron Microscope Study, V. Veronesi (IBM Italy, Vimercate), *Wear* **55**, No. 2, 265-276 (1979).